Soil Fauna Extraction

For more information: C.D. Franks at carol.franks@usda.gov or K.A. Goings at kristina.goings@usda.gov

Introduction

Soil fauna play an important role in the decomposition and cycling of organic matter (OM) in soil systems. Insects, earthworms, and other arthropods churn the soil and promote formation of soil structure, aeration, reduction in bulk density, and nutrient cycling. They also enhance water movement. Some soil fauna ingest organic matter by taking in soil, applying digestive enzymes, and excreting the soil/OM complex, thus providing a more readily available food source for other soil fauna and soil micro-organisms.

Experimenters can view the extracted soil fauna through a light microscope or magnifying glass. Classification and enumeration of the fauna can be performed with an illustrated insect/arthropod identification book. In this way, mature soil fauna can often be identified to the family or genus level.

Examining, identifying, and enumerating soil fauna can help us assess the functioning of the soil ecosystem — indicating community diversity, soil health (or degradation), soil quality, and appropriate nutrient cycling.

Summary of Method

This simple method is designed to extract live soil micro- and meso-fauna from an undisturbed soil sample using heat.

Equipment

- ✔ Funnels (metal or plastic, 8-12" diameter, narrowing to 1-1.5" diameter)
- ✔ Aluminum-hooded shop lights
- ✔ Incandescent bulbs (40 to 60 watts)
- ✔ Wire mesh (cut to support the soil sample in the funnel)
- ✔ Cheesecloth (if needed, to prevent soil loss through the funnel)
- ✔ Erlenmeyer flasks (or other collection jars)
- ✔ Analytical balance
- ✔ Petri dishes

Reagent

Isopropyl Alcohol